GRAY VIREO
Vireo vicinior

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Management Status: Federal: BLM Sensitive
California: Species of Special Concern (CDFG, 1998)

General Distribution:

The Gray Vireo breeds from southern California, southern Nevada, southern Utah, northwestern and central New Mexico, and western Oklahoma south to northwestern Baja California, central and southeastern Arizona, southern New Mexico, and western Texas and adjacent Coahuila, Mexico (AOU, 1983). Most birds depart the United States in winter, when the species occurs patchily in the southern portion of Baja California, and on the Mexican mainland in Sonora. The Gray Vireo winters in small numbers in southern Arizona and western Texas. Migrants are only rarely noted away from known breeding and wintering areas.

In California Gray Vireos breed in the Grapevine Mountains of Inyo Co., and in the mountain ranges of the eastern Mojave Desert (Kingston, Clark and New York mountains). They also breed on the drier northern and eastern slopes of the Transverse Ranges (particularly the eastern San Bernardino Mountains, but very locally on the north slope of the San Gabriel Mountains), in the San Jacinto Mountains, and on the southern slopes of the Laguna Mountains (Garrett and Dunn, 1981). They are not known to winter in California. Breeding birds arrive in California from late March to early May, with arrival dates earlier in the southwestern part of the range; birds have generally departed the breeding grounds by mid- to late August (Garrett and Dunn, 1981). The few records of transients away from wintering or breeding areas from the Colorado River westward have come from 26 March to 11 May in spring and from 6 September to 1 October in fall (Garrett and Dunn, 1981, Rosenberg et al. 1991, Los Angeles County Museum files).

Distribution in the West Mojave Planning Area:

Gray Vireos breed in small numbers at a few sites on the margin of the WMPA. In Los Angeles County one singing bird was present in summer 1997 just west of the junction of Pallett Creek and Big Rock Creek (elevation = 3800 ft. or 1160 m) near Valyermo. This is approximately 8 mi. (5 km) west of Bob's Gap (elevation = 4200 ft. or 1280 m), which was occupied by 1-3 pairs from 1981 to 1992 (Los Angeles County Museum files; *American Birds* regional reports). In 1985 an additional territorial bird was found along Largo Vista Road, southeast of Pearblossom; this is approximately 8 mi. (5 km) east of Bob's Gap. The presence of a singing bird in chamise chaparral in Mint Canyon (near Acton), Los Angeles Co., in 1921 (Miller, 1921) constitutes the westernmost possible breeding site in the county; this is just southwest of the limits of the WMPA. Grinnell and Miller (1944) also cite breeding localities at 6000 ft. (1,830 m) elevation in the northeastern San Gabriel Mountains, and summering birds were known in the vicinity of Phelan, at the northeastern base of the San Gabriel Mountains, as late as the 1960s (G. Shumway Suffel, pers. comm.). Arrival dates for breeding birds at Bob's Gap ranged from 7-19 April (Los Angeles County Museum files).

In San Bernardino County Gray Vireos have bred consistently in the Round Valley/Rose Mine area of the eastern San Bernardino Mountains (elevation = 6890-7870 ft. or 2100-2400 m), and likely breed locally in similar habitat elsewhere in those mountains. Territorial males were located in the upper Crystal Creek drainage, west of Cushenbury Canyon, in 1988 (Myers, 1988); this is only 1-2 mi. (1.5-3 km) south of the WMPA. They formerly bred in chamise-dominated chaparral in Cajon Pass (Hanna, 1944). Egg sets were taken south of Hesperia, at the southern edge of the WMPA, in1937 and 1949 (San Bernardino County Museum; CNDDB). Miller and Stebbins (1964) recorded breeding Gray Vireos at Black Rock Spring, Quail Spring, and Smithwater Canyon, all in the northern portion of Joshua Tree National Park.

In Kern County Gray Vireos have bred on the west side of Walker Pass (Grinnell 1922). There is a single sight record of uncertain authenticity at Castle Butte, east of California City in 1977 (California Natural Diversity DataBase).

The status of migrant Gray Vireos in the WMPA is confused by the frequent misidentification of Plumbeous Vireos (*Vireo plumbeus*) as this species (Garrett and Dunn, 1981; Heindel, 1996). The only acceptable record of a migrant Gray Vireo in the WMPA is one from Harper Dry Lake on 3 September 1986 (specimen, San Bernardino County Museum).

Breeding birds arrive during the first half of April at known sites along the northern flank of the San Gabriel Mtns., but arrival dates for breeding birds at higher elevations in the eastern San Bernardino Mountains are until early May (Garrett and Dunn, 1981). Birds have largely departed the breeding grounds by the middle of August, and there are no records in breeding habitat after the end of August.

Natural History:

The Gray Vireo is a small (5.5 in; 13.5 cm) insectivorous and frugivorous songbird with a fairly thick, hooked bill. It is plainly marked, being entirely gray above and slightly paler gray below, with a grayish head marked only with a thin whitish eye-ring. The wings show one or two thin, indistinct whitish wingbars. The unmarked gray tail is long for a vireo, and often flipped and waved expressively in a manner suggesting a gnatcatcher. The wings are relatively short and rounded, as might be expected of one of a short-distance migrant. This species is often confused in the field with the Plumbeous Vireo; the latter is more distinctly marked with a white throat contrasting with the dark gray head, bold white spectacles, and strong white wingbars. The tail of the Plumbeous Vireo is relatively shorter, and not flipped and waved about. The vocalizations of the two species differ: the Gray Vireo's song is a series of three to six upslurred or downslurred phrases in fairly predictable pattern; the Plumbeous Vireo usually delivers its song phrases more slowly, and many of its phrases are harsher, burrier, and more strongly inflected, than those of the Gray Vireo.

Stephens (1890) suggested that Gray Vireos from California (and adjacent Baja California and NW Arizona) might represent a distinct, darker subspecies, which he called *V. v. californicus*. Few subsequent workers (excepting Phillips, 1991) have accepted that designation; most consider the species monotypic.

The ecology of this species varies greatly with the season. During the spring and summer months it feeds by gleaning twigs and leaves for insects, especially lepidoptera (butterfly and moth) larvae and beetles (Chapin, 1925). In winter it subsists largely on the fruits of the elephant tree (*Bursera microphylla*) with individuals of both sexes maintaining and defending winter territories in areas of high resource abundance (Bates 1992a,b); its winter diet is supplemented by insects.

The open cup nests are placed in shrubs at heights of about 3-4 ft (ranging from 2.5-8 ft) (Bent, 1950); they may be placed in chamise (*Adenostoma fasciculatum*), junipers (*Juniperus* spp.), mesquites (*Prosopis* spp.), big sagebrush (*Artemisia tridentata*), antelope-brush (*Purshia glandulosa*), mountain mahogany (*Cercocarpus betuloides*), pinyons (*Pinus monophylla*) or other stiff-branched or thorny shrubs or small trees (Bent, 1950). A typical clutch is four eggs (Bent 1950); incubation and nestling periods are both 13-14 days, and double-brooding is frequent (Kaufman, 1996).

Habitat Requirements:

Although the floristic composition of the breeding habitat varies considerably throughout the range of this species, all such habitats are on arid slopes dominated by short, densely branched, stiff-twigged shrubs. On the slopes of the Transverse and Peninsular ranges they may occur in chamise-dominated chaparral without any conifers. It is absent, however, from the vast majority of chamise-dominated habitats in southern California. In the drier, eastern portions of the Transverse Range they generally occur in areas of mixed shrubs, e.g. big sagebrush, antelope-brush, buckwheat (*Eriogonum fasciculatum*), box thorn (*Lycium)*, silk tassel (*Garrya)*, scrub oak (*Quercus* spp.), manzanita (*Arctostaphylos* spp.), *Ceanothus*, *Ephedra*, etc.; such shrubs are typically mixed with scattered singleleaf pinyon, California juniper, and/or joshua-tree (Grinnell and Miller, 1944). Some habitats occupied on the desert ranges and most arid slopes of the Transverse Ranges are considerably more open in general structure than the chamise chaparral used in other areas.

Winter habitats are in arid desert slopes and washes dominated by fruiting elephant trees (*Bursera microphylla*). Such habitats do not exist in the WMPA.

Population Status:

Breeding birds are unevenly distributed, even within seemingly appropriate habitat. They usually occur in low densities, although Grinnell and Swarth (1913) estimated 16 pairs per square mile in the San Jacinto Mountains of Riverside County. There are few data on population trends for this species, as they are not well-sampled through traditional methods such as the Breeding Bird Survey. However, numerous sites documented in the literature (e.g., Grinnell and Miller, 1944) are no longer occupied (Garrett and Dunn, 1981), and it seems likely that the loss of many small, local populations has occurred. In the WMPA, the small population on the north slope of the San Gabriel Mountains is tenuous, at best (Los Angeles County Museum files); intensive field work for the Los Angeles County Breeding Birds Atlas has turned up only a single singing bird and has failed to find any birds at Bob's Gap, the "traditional" locality. In San Bernardino County the populations around Round Valley apparently persist, but the current status of other populations, including those in Joshua Tree National Park, is unknown.

Threats Analysis:

The reasons for the apparent decline of this species in southern California are unclear. One likely factor is cowbird parasitism, which was considered significant with respect to Gray Vireos as early as the 1940s (Hanna, 1944). Brown-headed Cowbirds have increased in range and abundance in the WMPA and can be especially numerous in the breeding season on the montane fringes of the Mojave Desert (K.L. Garrett, pers. obs.). Habitat degradation resulting from grazing, unnatural fire regimes, and pressure from human recreation seems likely along the southwestern margin of the planning area. Both livestock grazing and fires of unnatural frequency or intensity have the potential to modify the extent and composition of shrub cover to the detriment of Gray Vireos. Human recreation pressures in the form of off-road motorized vehicles and recreational shooting has the potential to cause disturbance to nesting vireos.

Biological Standards:

Intensive surveys for territorial Gray Vireos within the WMPA and adjacent National Forest lands should be undertaken to determine the current population size; any populations found should be monitored annually and measures of reproductive success (including the effects of cowbird parasitism) should be investigated. Especially important areas to concentrate upon include the northeastern flank of the San Bernardino Mountains north and east of Granite Peak and north of Burns Canyon, as well as other areas along the northern border of the San Bernardino and Angeles National Forests.

As Gray Vireos appear to nest in loose "colonies," occupying only a small portion of seemingly suitable habitat, known areas of occupation should be protected from excessive human recreational pressures, including off-road vehicles and target shooting. Livestock and equestrian facilities, which might promote cowbird abundance, should be situated well away from Gray Vireo habitat where possible.

Frequent fires may transform arid chaparral and pinyon-juniper habitat preferred by Gray Vireos into unsuitably open, eroded slopes with reduced shrub cover and dominated by exotic annuals; natural fire regimes in such habitats should be a goal of Gray Vireo habitat management.

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